

WE CLAIM AS OUR INVENTION:

1. An apparatus for generating x-rays comprising:

a structural unit containing a plurality of components operable in combination for generating x-rays, including an x-ray tube and a digital control, regulation and storage unit connected to all of said components, including being connected to said x-ray tube for controlling operation of said x-ray tube;

a peripheral device containing a process computer; and

said digital control, regulation and storage unit having an interface, accessible at said structural unit, to said process computer, said interface forming a single interface to said process computer for all of the components in said structural unit.

2. An apparatus as claimed in claim 1 wherein said x-ray tube has a cathode, and wherein said plurality of components include a heater current source connected to said cathode for heating said cathode.

3. An apparatus as claimed in claim 1 wherein said plurality of components include a cooling unit associated with said x-ray tube for circulating a coolant for cooling said x-ray tube, and a sensor for sensing at least one of a pressure and a temperature of said coolant.

4. An apparatus as claimed in claim 1 wherein said digital control, regulation and storage unit contains a program, and operates according to said program, for determining acceptability of a load on said x-ray tube requested by a user.

5. An apparatus as claimed in claim 1 wherein said x-ray tube has a rotating anode, and wherein said plurality of components include an electrical actuator for said rotating anode.

6. An apparatus as claimed in claim 1 wherein said digital control, regulation and storage unit contains a program, and operates according to said program to store accumulated operating data associated with operation of said x-ray tube.

7. An apparatus as claimed in claim 1 wherein said digital control, regulation and storage unit contains a program, and operates according to said program, to determine at least one of wear of said x-ray tube and an expected remaining life of said x-ray tube.

8. An apparatus as claimed in claim 1 wherein said digital control, regulation and storage unit contains a program, and operates according to said program, for monitoring operation of said plurality of components, including monitoring operation of said x-ray tube.

9. An apparatus as claimed in claim 1 wherein said plurality of components include a high voltage generator connected to said x-ray tube for supplying high voltage to said x-ray tube for operating said x-ray tube.